REMARKS

The above amendments to the above-captioned application along with the following remarks are being submitted as a full and complete response to the Final Official Action dated July 27, 2005 (U.S. Patent Office Paper No. 7202005). In view of the above amendments and the following remarks, the Examiner is respectfully requested to give due reconsideration to this application, to indicate the allowability of the claims, and to pass this case to issue.

Status of the Claims

Claims 1, 2, 4 through 8 and 10 are presently pending in the above identified application. Claims 3, 9 and 11 have been previously cancelled without prejudice or disclaimer of their subject matter. Also, Claims 1, 7, 8 and 10 are being amended to correct formal errors, place the claims in better form and to more particularly point out and distinctly claim the subject invention. Entry of the amendments to Claims 1, 7, 8 and 10 is respectfully requested.

Prior Art Rejection

Claims 1, 2, 4, 5 and 10 were rejected under 35 U.S.C. 103(a) over the prior art described on pages 1-3 of the specification and Figures 13-17, hereinafter the AAPA, in view of U.S. Pat. No. 6,657,813 to Nishida et al., hereinafter the Nishida '813 patent, and further in view of U.S. Pat. No. 6,522,610 to Kuroda, hereinafter the Kuroda '610 Patent. This rejection is respectfully traversed.

Claim 6 was rejected under 35 U.S.C. 103(a) over the AAPA in view of the Nishida '813 patent, and further in view of the Kuroda '610 Patent. This rejection is respectfully traversed.

Claims 7 and 8 were rejected under 35 U.S.C. 103(a) over the AAPA in view of the Kuroda '610 Patent. This rejection is respectfully traversed.

The above rejections of Claims 1, 2, 4 through 8 and 10 under 35 U.S.C. 103(a) will be considered collectively.

It is respectfully submitted that the AAPA in combination with the Nishida '813 patent and Kuroda '610 patent do not disclose:

a magnetic recording apparatus, including a perpendicular magnetic recording medium, wherein the signal processing circuit adds at the end of the recording data sequence for each sector block a repetition pattern of a minimum bit length for the particular block, and the repetition pattern includes four or more bits of repetitions of magnetization inversion at the intervals of a minimum-bit length of a relevant sector, as respectively recited in Claim 1;

a perpendicular magnetic recording medium, wherein, at the end of a recording data sequence in each sector block, a repetition pattern of a minimum bit length for the particular sector block is added, and the repetition pattern includes four or more bits of repetitions of magnetization inversion at the intervals of a minimum-bit length of a relevant sector, as respectively recited in Claim 7; and

a method of recording information on a perpendicular magnetic recording medium including adding a repetition pattern of a minimum bit length at the end of the recording data sequence, the repetition pattern includes four or more bits of repetitions of magnetization inversion at the intervals of a minimum-bit length of a relevant sector, as respectively recited in Claim 10.

The present invention relates to magnetic recording, and it is an object thereof to resolve the problem of post-recording erasure. In this regard, for example, as shown in Fig. 13(b) in the above identified application, residual magnetization remains at the tip of the main magnetic pole even when a recording current is set to zero. Recorded data is erased due to magnetic flux leaking from the tip of the main magnetic pole.

According to the present invention, by adding at the end of a recording data sequence a repetition pattern of a minimum bit length for the particular block or recording data sequence, the repetition pattern including four or more bits of repetitions of magnetization inversion at the intervals of a minimum-bit length of a relevant sector, such as respectively recited in Claims 1, 7 and 10, residual magnetization can be reduced.

Applicants respectfully submit that the AAPA in combination with the Nishida '813 patent and Kuroda '610 patent do not disclose, teach or suggest adding at the end of a recording data sequence a repetition pattern of a minimum bit length for the particular block or recording data sequence, the repetition pattern including four or more bits of repetitions of magnetization inversion at the intervals of a minimum-bit length of a relevant sector, such as respectively recited in Claims 1, 7 and 10.

It is respectfully that submitted above-described features of Claims 1, 7 and 10 are not disclosed or taught by the AAPA. In this regard, the Final Office Action recognizes that the

"AAPA fails to particularly disclose the signal processing circuit adds at the end of the recording data sequence for each sector block a repetition pattern of a minimum bit length for the particular block". (Final Office Action, pages 3 and 5)

Further, the Nishida '813 patent, in addition to not disclosing the above described features of Claims 1, 7 and 10, was only cited for a disclosure of a magnetic head. (Final Office Action, pages 2 and 3).

Further, it is respectfully submitted that it would not be obvious to combine the AAPA with the Kuroda '610 patent, in that the Kuroda '610 patent likewise does not disclose adding at the end of a recording data sequence a repetition pattern of a minimum bit length for the particular block or recording data sequence, the repetition pattern including four or more bits of repetitions of magnetization inversion at the intervals of a minimum-bit length of a relevant sector, such as respectively recited in Claims 1, 7 and 10.

In contrast, it is respectfully submitted that the Kuroda '610 patent is concerned with a rewriting problem typical to optical discs, which is different from a magnetic recording apparatus, a perpendicular magnetic recording medium, and a method of recording information on a perpendicular magnetic recording medium, such as respectively recited in Claims 1, 7 and 10, which relate to perpendicular magnetic recording.

Further, it is respectfully submitted that the section of the Kuroda '610 patent referenced by the Examiner, at Col. 4, lines 13-31 (Final Office Action, pages 3 through 5) merely describes the addition of an ECC code at the end of a sector block for error correction purposes.

In contrast to the Kuroda '610 patent, the present invention, in various methods or apparatus, respectively can provide:

(1) a recording data sequence having a repetition pattern of a minimum bit length for the particular block added at the end thereof that is converted into a recording current, in accordance with which the recording head is driven; and

(2) the signal processing circuit adds, at the end of the recording data sequence for each sector block, a repetition pattern of a minimum bit length for the particular block.

It is respectfully submitted that such above described features of the present invention promote eliminating residual magnetization in the head after the recording of a sector block.

In other words, the present invention provides a repetition pattern of a minimum bit length, of converting the pattern into a recording current, and such features can provide the advantageous effect of promoting the elimination of residual magnetization in the head after

the recording of a sector block, which effect, it is respectfully submitted, it not taught or suggested from the disclosure of the Kuroda '610 patent.

In view of the foregoing, it is respectfully submitted in that the Kuroda '610 patent does not disclose adding at the end of a recording data sequence a repetition pattern of a minimum bit length for the particular block or recording data sequence, the repetition pattern including four or more bits of repetitions of magnetization inversion at the intervals of a minimum-bit length of a relevant sector, such as respectively recited in Claims 1, 7 and 10, it would not be obvious to combine the disclosure of the Kuroda '610 patent with the AAPA, and the Nishida '813 patent to arrive at the claimed subject matter of Claims 1, 7 and 10.

Claims 2 and 4 through 6, which respectively depend from Claim 1, are at least allowable for the same reasons that Claim 1 is allowable. Also, Claim 8, which depends from Claim 7, is at least allowable for the same reasons that Claim 7 is allowable.

Withdrawal of the rejections of Claims 1, 2, 4 through 8 and 10 under 35 U.S.C. 103(a) is respectfully requested.

Reconsideration and allowance of Claims 1, 2, 4 through 8 and 10 are respectfully requested.

Conclusion

In view of all the above, Applicants respectfully submit that certain clear and distinct differences as discussed exist between the present invention as now claimed and the prior art references upon which the rejections in the Office Action rely. These differences are more than sufficient that the present invention as now claimed would not have been anticipated nor rendered obvious given the prior art. Rather, the present invention as a whole is distinguishable, and thereby allowable over the prior art.

Favorable reconsideration of this application is respectfully solicited. Should there be any outstanding issues requiring discussion that would further the prosecution and allowance of the above-captioned application, the Examiner is invited to contact the Applicants' undersigned representative at the address and phone number indicated below.

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